ROYAL COLLEGE
RED CROSS SOCIETY

Non Communicable Diseases

HealthFirst

Contents

- Non Communicable Diseases (NCDs)
  - The Global Challenge of NCDs
  - NCDs in Sri Lanka
  - Why Prevention Matters
- Causes and Risk Factors of Non-Communicable Diseases
  - Causes of NCDs
  - Risk Factors for NCDs
    - Modifiable Behavioral Risk Factors
    - Metabolic Risk Factors
- Primary Types of NCDs
- Cardiovascular Diseases
  - Types of Cardiovascular Diseases
    - Coronary Artery Disease (CAD)
    - Arrhythmias
    - Heart Attack (Myocardial Infarction)
    - Heart Failure
  - Preventing Cardiovascular Diseases
  - Treatments for Cardiovascular Diseases
- Cancer
  - Types of Cancer
  - Causes and Risk Factors for Cancer
  - Symptoms of Cancer
  - Preventing Cancer
  - Treatment Options for Cancer
    - Chemotherapy
    - Radiation Therapy
    - Immunotherapy
    - Targeted Therapy
    - Hormone Therapy
    - Stem Cell Transplants

- The Importance of Early Detection

Diabetes

- Types of Diabetes
- Causes and Risk Factors for Diabetes
- Symptoms of Diabetes
- Complications of Diabetes
- Managing Diabetes
  - Blood Sugar Monitoring
  - Medications
  - Dietary Management
  - Exercise
  - Stress Management

Chronic Respiratory Diseases

- Types of Chronic Respiratory Diseases
- Causes and Risk Factors of CRDs
- Symptoms of Chronic Respiratory Diseases
- Complications of CRDs
- Preventing Chronic Respiratory Diseases
- Managing Chronic Respiratory Diseases
  - Medication
  - Pulmonary Rehabilitation
  - Allergy Management
  - Vaccination
- The Importance of Early Detection and Regular Check-Ups

The HealthFirst Magazine Series

Welcome to the 2024 edition of the HealthFirst magazine, an initiative of the Royal College Red Cross Society. As the editor, it is my great pleasure to present this resource, which has been designed with the wellbeing of our community in mind.

In an everchanging world, health is one of the most precious assets we possess. Whether it is knowing how to provide first aid in emergencies, understanding the importance of mental health, or preventing common injuries, the knowledge we share in this magazine can make a real difference in everyday lives.

This edition focuses on the critical issue of **Non-Communicable Diseases**, which are a leading cause of illness and death worldwide. Understanding how to manage and prevent these diseases is essential for improving health outcomes and reducing their impact on individuals and communities. Through this magazine, we aim to equip readers with the knowledge needed to make informed choices, manage risk factors, and promote healthier lifestyles to prevent and control NCDs, whether at home, in schools, or in the broader community.

At the Royal College Red Cross Society, we believe that health awareness is a collective responsibility. Our goal is to foster a community that is proactive about health and safety, empowering individuals to make informed decisions that lead to healthier, safer lives.

I hope this magazine serves as a useful guide for you and inspires you to prioritize health in all aspects of your life. Together, we can create a healthier, more resilient future.

Yudhana Nanayakkara,
Editor,
HealthFirst Magazine.

Non Communicable Diseases (NCDs)

The Global Challenge of NCDs

Non-Communicable Diseases, or NCDs, refer to a range of chronic illnesses that are not spread from person to person but instead develop over time due to genetic, environmental, and lifestyle factors. Today, NCDs are one of the leading causes of mortality and disability globally, responsible for over 71% of deaths worldwide. Common NCDs include cardiovascular diseases, cancers, chronic respiratory diseases, and diabetes. These conditions bring a significant burden not only on individuals but also on healthcare systems, affecting communities and national economies.

NCDs in Sri Lanka

In Sri Lanka, NCDs account for a staggering 83% of all deaths, which includes many premature deaths among those aged 30 to 69. Rapid urbanization, lifestyle changes, and increased life expectancy have contributed to the rising prevalence of these diseases. As Sri Lanka continues to modernize, it's crucial to build awareness, emphasize prevention, and foster a culture of healthy living to combat this growing health crisis.

Why Prevention Matters

Preventing NCDs is possible by making lifestyle changes, such as adopting a balanced diet, exercising regularly, avoiding tobacco, and managing stress effectively. This magazine is dedicated to providing insights into NCDs and empowering readers with the knowledge needed to lead a healthier life. By understanding these conditions, we can take proactive steps to reduce the risks and live a long, healthy, and fulfilling life.

Causes and Risk Factors of Non-Communicable Diseases

Causes of NCDs

Non-Communicable Diseases (NCDs) result from a complex interaction of various factors. These causes fall broadly into three categories,

- Genetic Factors
- Environmental Factors
- Behavioral Factors

Risk Factors for NCDs

There are two types of risk factors modifiable risk factors and metabolic risk factors. Modifiable risk factors are lifestyle choices that can be changed or controlled to reduce the risk of NCDs, and metabolic risk factors involve physiological changes in the body that increase disease risk.

Modifiable Behavioral Risk Factors

- Tobacco Use
- Excessive Alcohol Consumption
- Physical Inactivity
- Unhealthy Diet

Metabolic Risk Factors

- High Blood Pressure
- High Blood Glucose Level
- Increased Body Weight
- High Blood Cholesterol

Primary Types of NCDs

- Cardiovascular Diseases
- Cancer
- Diabetes
- Chronic Respiratory Diseases

Cardiovascular Diseases

Cardiovascular diseases refer to a variety of conditions that affect the heart's structure and function, leading to issues with blood flow and the body's overall circulation. The most common forms include coronary artery disease, arrhythmias, and heart attacks, with coronary artery disease being the leading cause of death from heart disease globally. Lifestyle choices, such as unhealthy diets, sedentary habits, smoking, and alcohol use, often increase the risk of developing heart disease.

Types of Cardiovascular Diseases

Coronary Artery Disease (CAD)

CAD is the most common form, caused by a buildup of plaque in the arteries that supply blood to the heart. This plaque, composed of fat, cholesterol, and other substances, narrows the arteries, reducing blood flow and potentially leading to chest pain (angina), shortness of breath, or even a heart attack. Over time, untreated CAD can weaken the heart muscle, leading to heart failure.

Arrhythmias

Arrhythmias are irregular heartbeats that occur when the heart's electrical signals are disrupted, causing it to beat too fast (tachycardia), too slow (bradycardia), or erratically. While brief arrhythmias can be harmless, prolonged or frequent episodes can indicate an underlying issue that requires medical attention. Symptoms may include palpitations, dizziness, and chest pain.

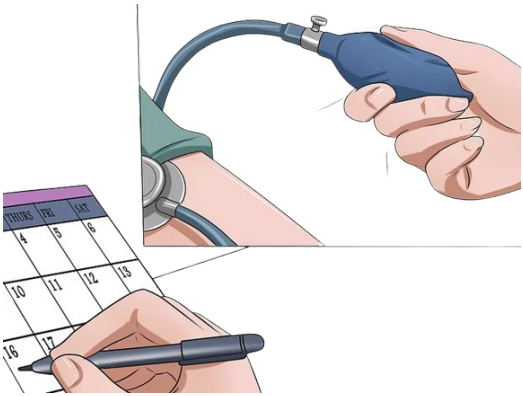
Heart Attack (Myocardial Infarction)

A heart attack happens when the blood supply to part of the heart muscle is blocked, often by a blood clot. This interruption can damage or destroy part of the heart muscle. Immediate medical treatment is essential to reduce permanent damage. Heart attacks often present with symptoms such as chest pain, sweating, nausea, shortness of breath, and pain radiating to the arms, jaw, or back.

Heart Failure

Heart failure occurs when the heart muscle becomes too weak or stiff

to pump blood efficiently, often due to prior heart conditions, high blood pressure, or diabetes. It may cause fluid buildup in the lungs, feet, and legs, leading to symptoms such as shortness of breath, swelling, and fatigue.



Preventing Cardiovascular Diseases

- Adopt a Heart-Healthy Diet
- Stay Physically Active
- Avoid Smoking and Excessive Alcohol
- Manage Stress
- Routine Health Check-Ups

Treatments for Cardiovascular Diseases

Various medications, surgeries and procedures, including blood thinners, beta-blockers, ACE inhibitors, and cholesterol-lowering drugs, help manage heart disease symptoms and reduce the risk of complications.

- Anticoagulants - Prevents blood clots from forming.
- Statins - Lowers cholesterol and reduces the risk of plaque formation.
- Beta-Blockers - Lowers heart rate and blood pressure.
- Angioplasty - A procedure to open blocked arteries and restore blood flow.
- Pacemaker - A device implanted to regulate the heartbeat in cases of arrhythmia.
- Coronary Artery Bypass Grafting (CABG) - A surgery to bypass clogged arteries and improve blood supply to the heart.

Permanent lifestyle changes are often essential for managing heart disease, focusing on diet, exercise, and mental well-being.

Cancer

Cancer is a complex disease marked by uncontrolled cell growth, which can invade surrounding tissues and spread throughout the body. It is one of the leading causes of death worldwide, and its impact spans across all ages, genders, and socioeconomic backgrounds. Cancer develops when the body's normal process of cell growth and death is disrupted, leading to the formation of abnormal cells that grow and divide uncontrollably.

Cells usually follow a regulated life cycle that includes growth, division, and death. However, cancerous cells bypass this cycle, continuously dividing and forming tumors. These tumors can be benign (non-cancerous) or malignant (cancerous). Malignant tumors have the potential to invade nearby tissues and spread to other parts of the body, a process called metastasis.

Types of Cancer

Cancer can originate in almost any part of the body and can be classified based on where it begins. Following are some of the most common types,

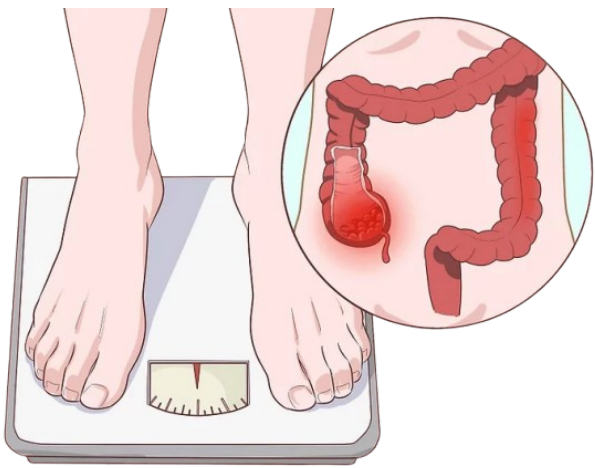
- Breast Cancer
- Lung Cancer
- Prostate Cancer
- Colorectal Cancer
- Skin Cancer (Melanoma)
- Leukemia

Causes and Risk Factors for Cancer

Cancer can develop due to a combination of genetic factors and lifestyle influences. These are some of the most common causes and risk factors,

- Genetic Mutations
- Smoking and Tobacco Use
- Poor Diet and Obesity
- Physical Inactivity
- Prolonged exposure to UV rays
- Excessive Alcohol Consumption
- Exposure to Chemicals
- Viruses and Infections

Symptoms of Cancer



While symptoms vary depending on the type and stage of cancer, common indicators are,

- Unexplained weight loss
- Persistent fatigue

- Lump or thickening in the body
- Unexplained bleeding or bruising
- Persistent cough or trouble breathing
- Changes in bowel or bladder habits
- Skin changes

Preventing Cancer

- Healthy Diet
- Exercising Regularly
- Avoid Smoking and Limit Alcohol
- Using sunscreen
- Regular Screening Tests

Treatment Options for Cancer

Chemotherapy

Chemotherapy uses drugs to target rapidly dividing cancer cells throughout the body. While it is highly effective, it often has side effects like fatigue, hair loss, and nausea. Chemotherapy is used for many cancer types and can be combined with other treatments for better outcomes.

Radiation Therapy

This treatment uses high-energy radiation to kill or shrink cancer cells in a targeted area. Radiation therapy can be used as a primary treatment or to shrink tumors before surgery. Side effects can include skin irritation, fatigue, and localized pain.

Immunotherapy

Immunotherapy leverages the body's immune system to recognize and destroy cancer cells. This approach includes treatments like checkpoint inhibitors and CAR T-cell therapy. It is especially promising for cancers like melanoma and certain types of lung cancer.

Targeted Therapy

Targeted therapy blocks specific molecules involved in cancer cell growth and survival. For example, monoclonal antibodies target proteins on cancer cells, while small-molecule drugs can enter cells and disrupt their functions.

Hormone Therapy

Hormone therapy is effective for cancers that depend on hormones for growth, such as breast and prostate cancer. It works by lowering hormone levels or blocking their effects on cancer cells.

Stem Cell Transplants

Often used for blood cancers like leukemia, stem cell transplants restore damaged bone marrow by replacing it with healthy cells. This treatment is highly specialized and can provide a chance for recovery in patients with certain cancers.

The Importance of Early Detection

Cancer treatments are most effective when the disease is diagnosed early. Routine check-ups and cancer screenings play a significant role in early detection, leading to better outcomes and more treatment options. Regular self-exams, awareness of family medical history, and understanding the symptoms associated with common cancers can empower individuals to seek medical advice promptly.

Diabetes

Diabetes is a chronic condition that occurs when the body is unable to properly regulate blood sugar (glucose) levels. Glucose is essential for energy, but high levels can cause damage to the body’s organs, blood vessels, and nerves over time. Diabetes can result from the body’s inability to produce insulin (a hormone that regulates blood sugar) or the cells' inability to respond to insulin properly. This condition is one of the fastest-growing global health issues, affecting millions of people worldwide, with significant impacts on health, quality of life, and healthcare systems.

Types of Diabetes

- Type 1 Diabetes
- Type 2 Diabetes
- Gestational Diabetes
- Prediabetes

Causes and Risk Factors for Diabetes

Diabetes results from a combination of genetic, lifestyle, and environmental factors.

- Family History of Diabetes
- Overweight and Obesity
- Physical Inactivity
- Poor Diet
- High Blood Pressure and Cholesterol

Symptoms of Diabetes

- Increased thirst and frequent urination
- Excessive hunger
- Unexplained weight loss
- Fatigue and weakness
- Blurred vision
- Slow-healing sores or frequent infections
- Tingling or numbness in hands and feet

Complications of Diabetes

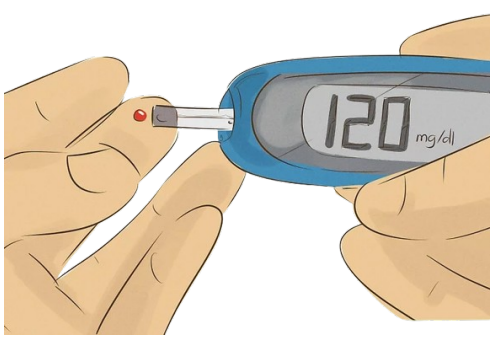
If not well-managed, diabetes can lead to a range of complications that affect multiple organ systems.

- Heart Disease
- Kidney Disease
- Eye Damage
- Nerve Damage
- Foot Complications
- Skin Conditions
- Mental Health Issues

Managing Diabetes

Blood Sugar Monitoring

Regularly checking blood sugar levels is essential to managing diabetes. Monitoring helps individuals adjust their treatment plans, diet, and exercise to maintain target blood sugar levels.



Medications

- Insulin
- Oral Medications
- GLP-1 Receptor Agonists
- SGLT2 Inhibitors

Dietary Management

Carbohydrate counting is a common dietary strategy, as carbs have the most direct impact on blood sugar levels. Diabetics are encouraged to consume complex carbs, lean proteins, and healthy fats while avoiding sugary snacks and refined grains.

Exercise

Physical activity helps the body use insulin more effectively, lowering blood sugar levels. Diabetics should consult with their healthcare providers to tailor an exercise plan that suits their condition.

Stress Management

Stress hormones can increase blood sugar levels, complicating diabetes management. Techniques like mindfulness, yoga, and relaxation exercises are beneficial for reducing stress and maintaining stable blood sugar.

Chronic Respiratory Diseases

Chronic Respiratory Diseases (CRDs) are long-term diseases of the airways and other structures of the lungs. These diseases are progressive, often limiting airflow and causing breathing difficulties. The most common CRDs include chronic obstructive pulmonary disease (COPD), asthma, occupational lung diseases, and pulmonary hypertension. Unlike infectious respiratory conditions, such as pneumonia or tuberculosis, CRDs are not caused by infections and are typically non-reversible, although their symptoms can often be managed effectively.

CRDs are prevalent worldwide, with an especially high impact in low- and middle-income countries. Exposure to air pollution, tobacco

smoke, and occupational hazards are among the primary risk factors. These diseases not only limit physical activity and quality of life but also contribute significantly to mortality rates.

Types of Chronic Respiratory Diseases

- Chronic Obstructive Pulmonary Disease (COPD)
- Asthma
- Pulmonary Hypertension
- Occupational Lung Diseases

Causes and Risk Factors of CRDs

Chronic respiratory diseases can result from a combination of genetic predisposition and exposure to environmental or lifestyle factors.

- Smoking
- Occupational Hazards
- Genetics
- Allergens and Respiratory Infections
- Household Air Pollution

Symptoms of Chronic Respiratory Diseases

- Persistent cough
- Shortness of breath or breathlessness
- Wheezing
- Tightness in the chest
- Mucus or sputum production
- Fatigue and decreased ability to exercise

Complications of CRDs

When left untreated or poorly managed, CRDs can lead to several complications,

- Respiratory Infections
- Heart Issues
- Lung Cancer

- Reduced Quality of Life
- Mental Health Challenges

Preventing Chronic Respiratory Diseases

Prevention strategies can help reduce the risk of developing CRDs or mitigate symptoms for those already diagnosed.

- Avoid smoking
- Limit Exposure to Pollutants
- Maintain a Healthy Lifestyle
- Get vaccinated against respiratory infections
- Regular Check-Ups

Managing Chronic Respiratory Diseases

Medication

- Bronchodilators
- Corticosteroids
- Mucolytics
- Oxygen Therapy

Pulmonary Rehabilitation

Pulmonary rehabilitation programs combine education, exercise, and breathing techniques to help people with CRDs manage symptoms, improve physical fitness, and enhance overall well-being. These programs are tailored to individual needs and supervised by healthcare professionals.

Allergy Management

Individuals with asthma triggered by allergies can benefit from managing their exposure to allergens. This might include using air purifiers, regularly washing bedding, and keeping windows closed during high pollen seasons.

Vaccination

Vaccination against respiratory infections like the flu and pneumonia is especially important for individuals with CRDs, as these infections can lead to severe complications.

The Importance of Early Detection and Regular Check-Ups

CRDs are progressive and can worsen over time if left untreated. Regular medical check-ups and lung function tests are crucial for early diagnosis and better management. Individuals in high-risk groups such as smokers, those exposed to occupational hazards, and people with a family history of respiratory diseases should undergo regular screening to detect potential issues early.

Acknowledgement

The editor along with the HealthFirst ‘24 Committee would like to present their sincere gratitude to the following people for their tremendous support shown in putting forward this publication, without which this would not have been a success.

- To our Principal Mr. Thilak Waththuhewa, Deputy Principal, Senior Master in Charge of Clubs and Societies, Teacher in Charge for guidance and support.
- To our Senior Deputy Principal Mr. L.W.K. Silva for his encouragement and valuable advice.
- To the Royal College Prefects’ Council 2024/2025, Deputy Head Prefect of Clubs and Societies and Clubs Committee for thier guidance and support.
- To Committee members who have worked tirelessly to bring this edition to life.
- To all the members of the Royal College Red Cross Society.